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Hirman et al.

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(54) **SUPPORT MECHANISM FOR A CONSTRUCTION MACHINE**

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F16M 13/02	(2006.01)
B62D 65/00	(2006.01)
E01C 23/12	(2006.01)
E01C 23/088	(2006.01)

(52) **U.S. Cl.**

CPC ***F16M 13/022*** (2013.01); ***B62D 65/00*** (2013.01); ***E01C 23/088*** (2013.01); ***E01C 23/127*** (2013.01)

(58) **Field of Classification Search**

CPC E01C 23/088; E01C 23/127

See application file for complete search history.

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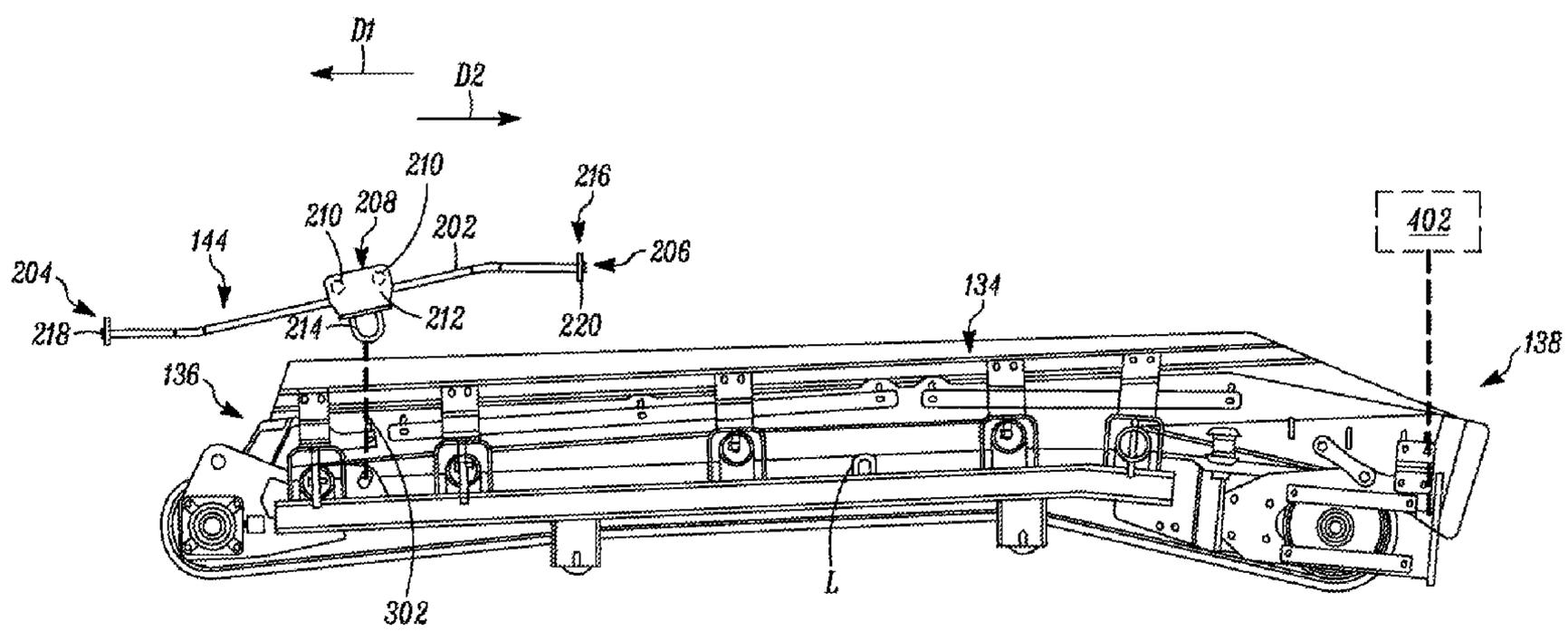
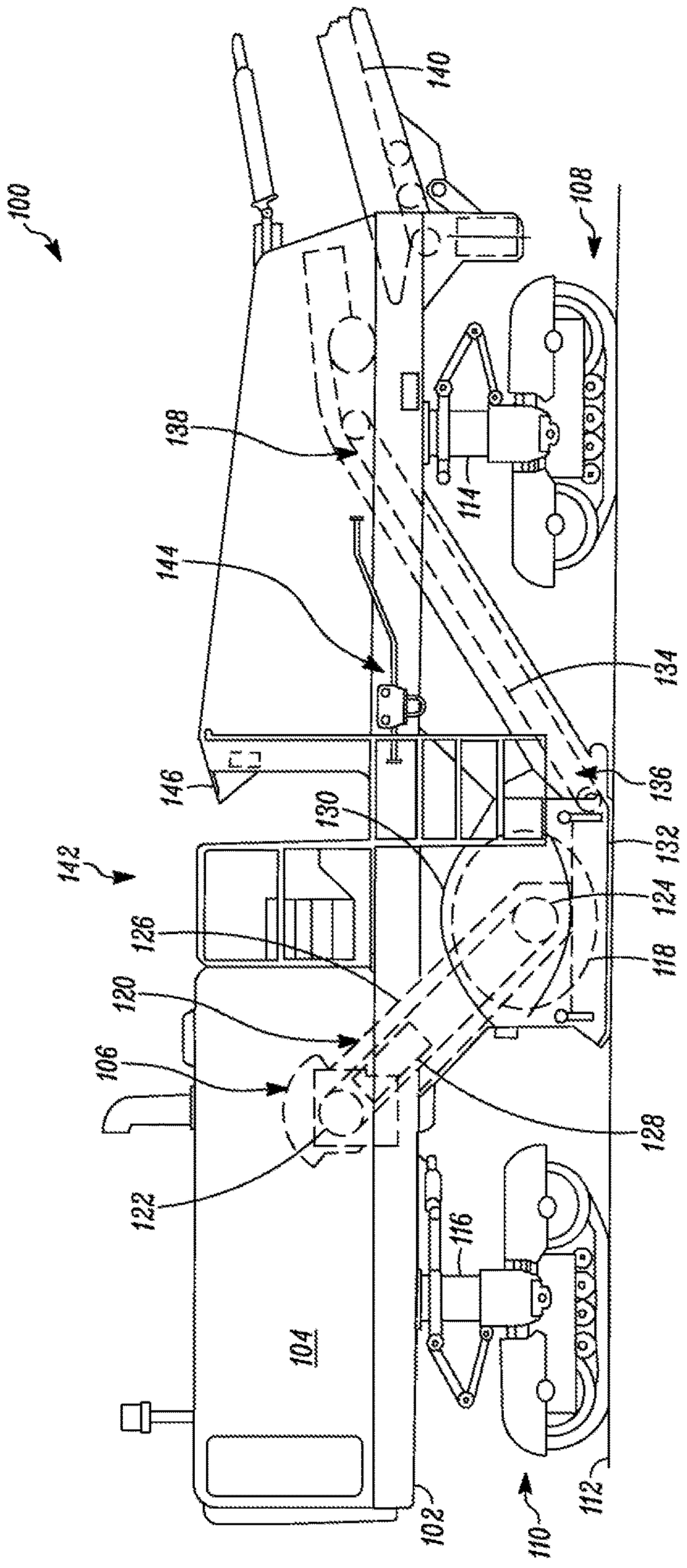
(57) **ABSTRACT**

A construction machine includes a frame. The machine includes an engine mounted on the frame. The machine includes a milling tool rotatably mounted on the frame and configured to be selectively coupled to the engine. The machine also includes a conveyor removably mounted on the frame. The machine further includes a support mechanism mounted on the frame. The support mechanism includes a track member secured to the frame. The support mechanism also includes at least one carriage member movably mounted on the track member. The support mechanism further includes an attachment member secured to the at least one carriage member and the conveyor. The attachment member is configured to be selectively unsecured from the conveyor. The support mechanism is configured to move at least a portion of the conveyor relative to the construction machine.

20 Claims, 9 Drawing Sheets




100
140
108
138
114
144
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146
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130
132
142
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126
118
120
106
128
122
116
104
102
110
112

FIG. 1

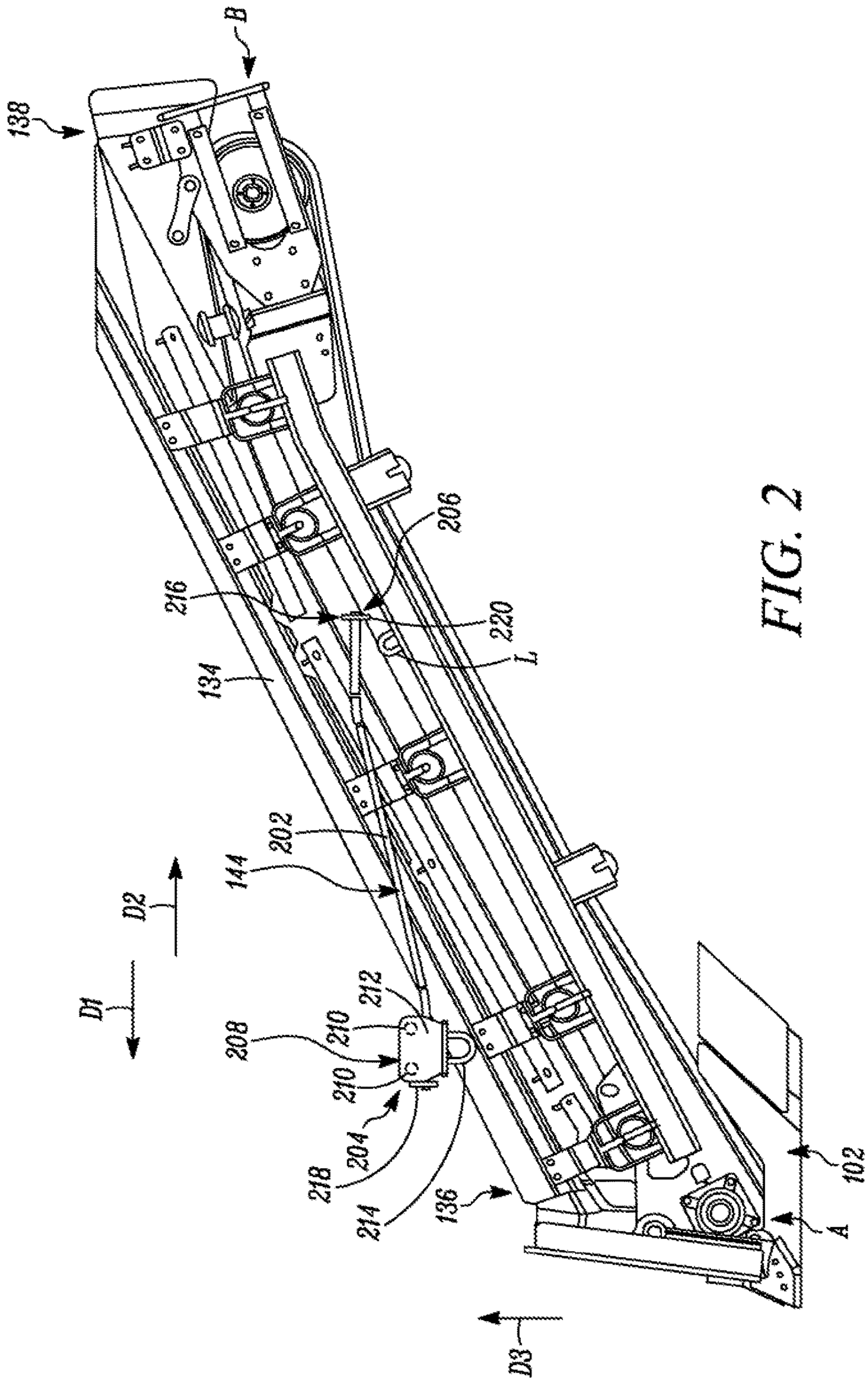
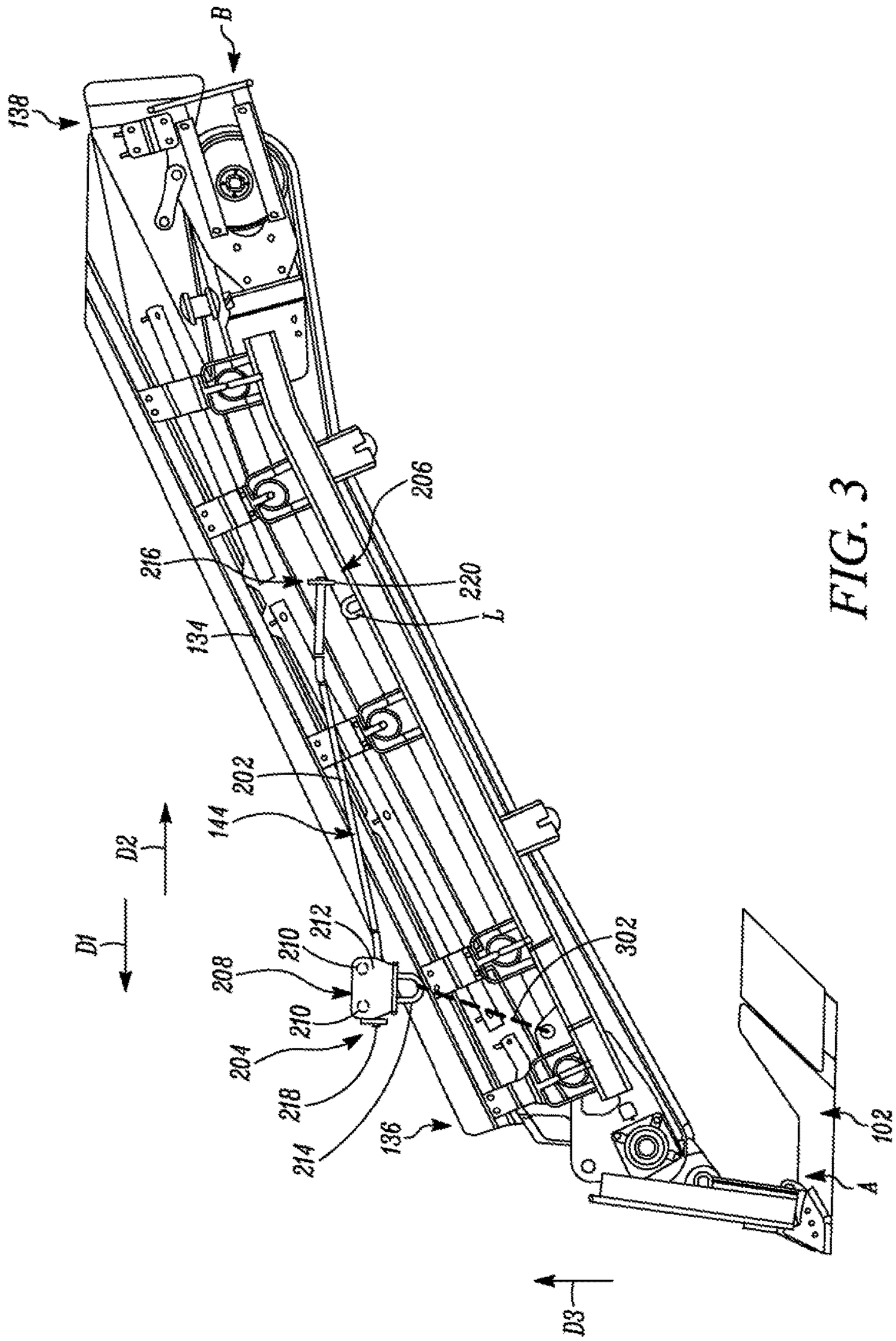

B
138
206
216
220
L
134
202
144
D2
D1
208
210
212
210
204
218
214
136
D3
102
A

FIG. 2


B
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206
216
220
L
134
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144
D2
D1
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210
212
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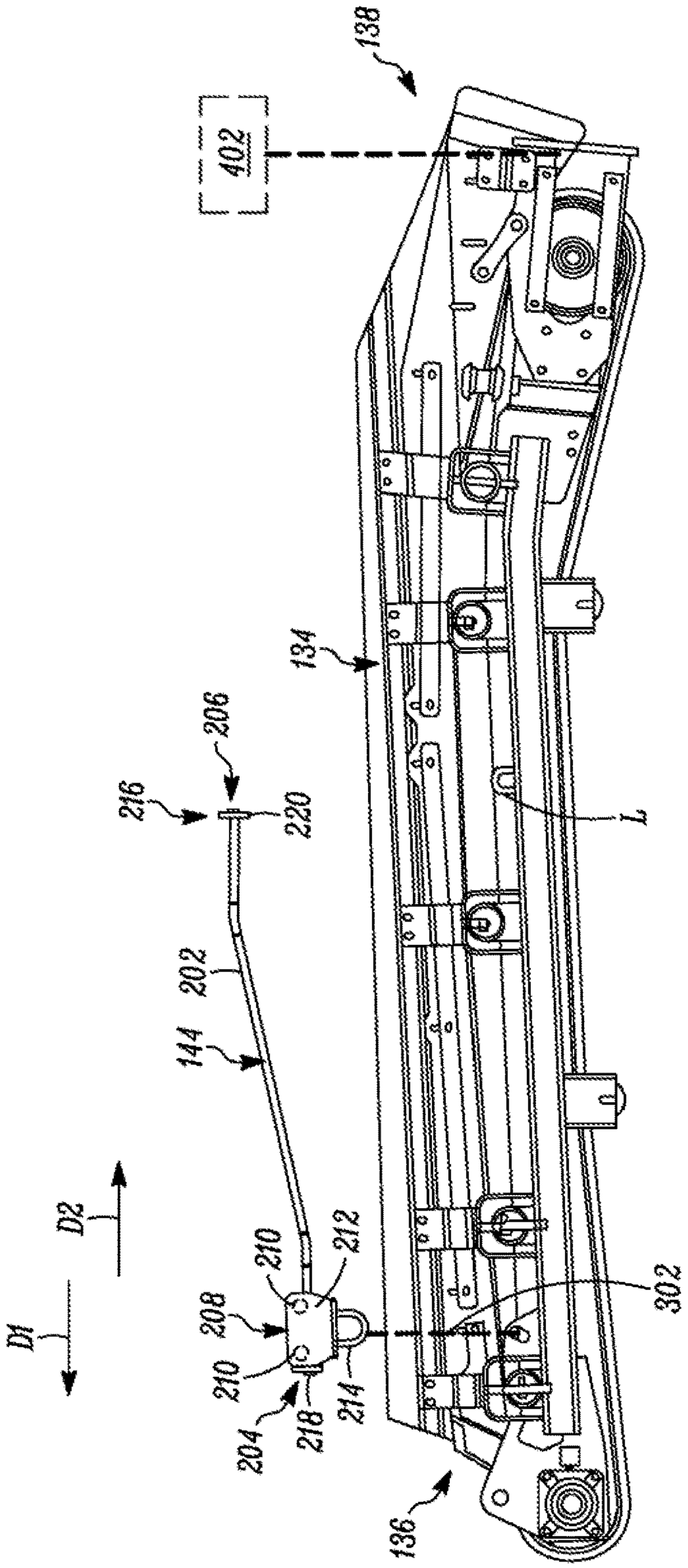
218
214
136
302
102
A
D3

FIG. 3


138
402
134
206
216
220
202
144
L
D2
D1
210
212
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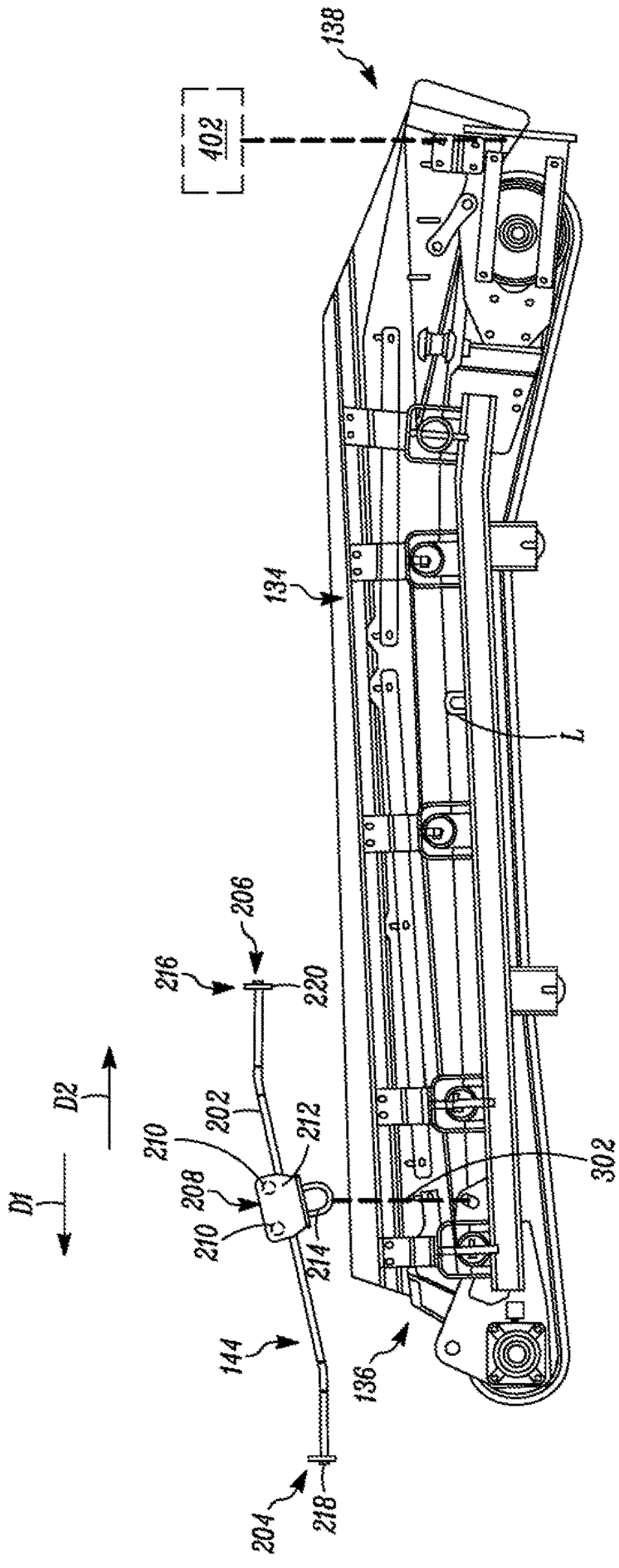
210
204
218
214
302
136

FIG. 4


138
402
134
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206
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220
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D1
202
210
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212
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214
144
204
218
136
302

FIG. 5

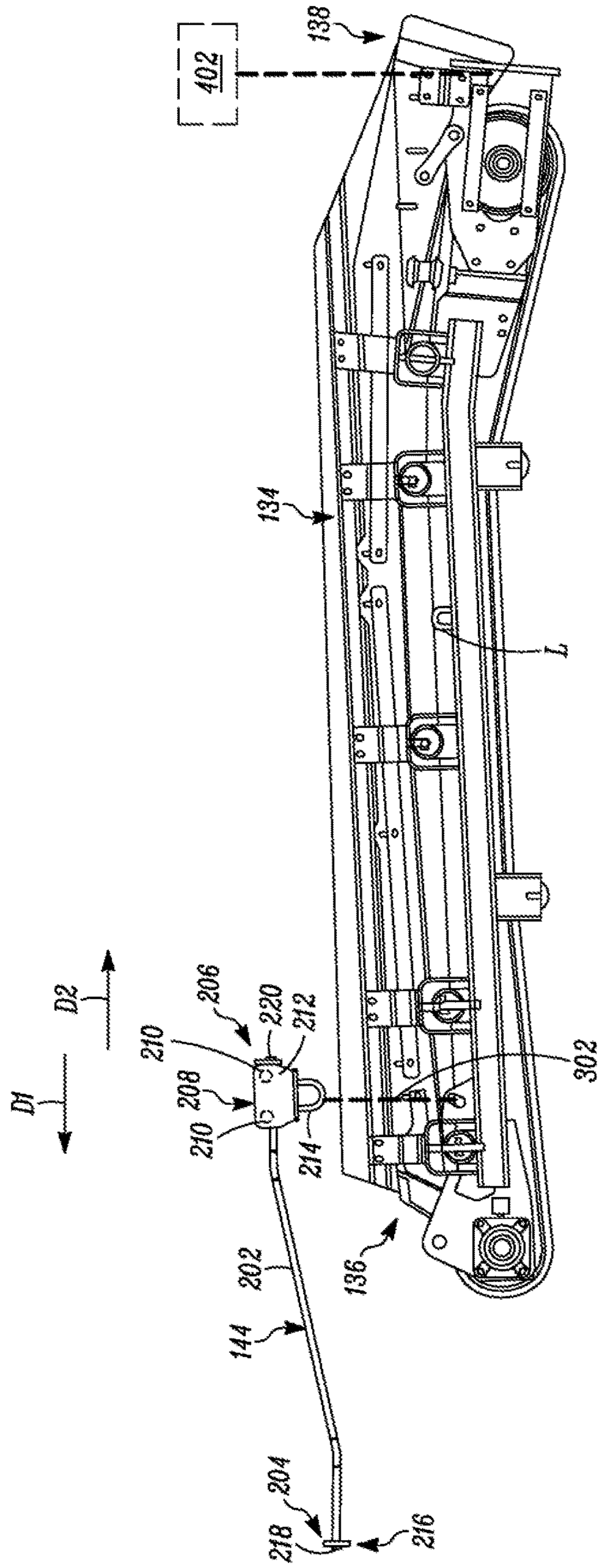

138
402
134
L
302
136
D1
D2
206
220
212
210
208
210
214
202
144
204
218
216

FIG. 6

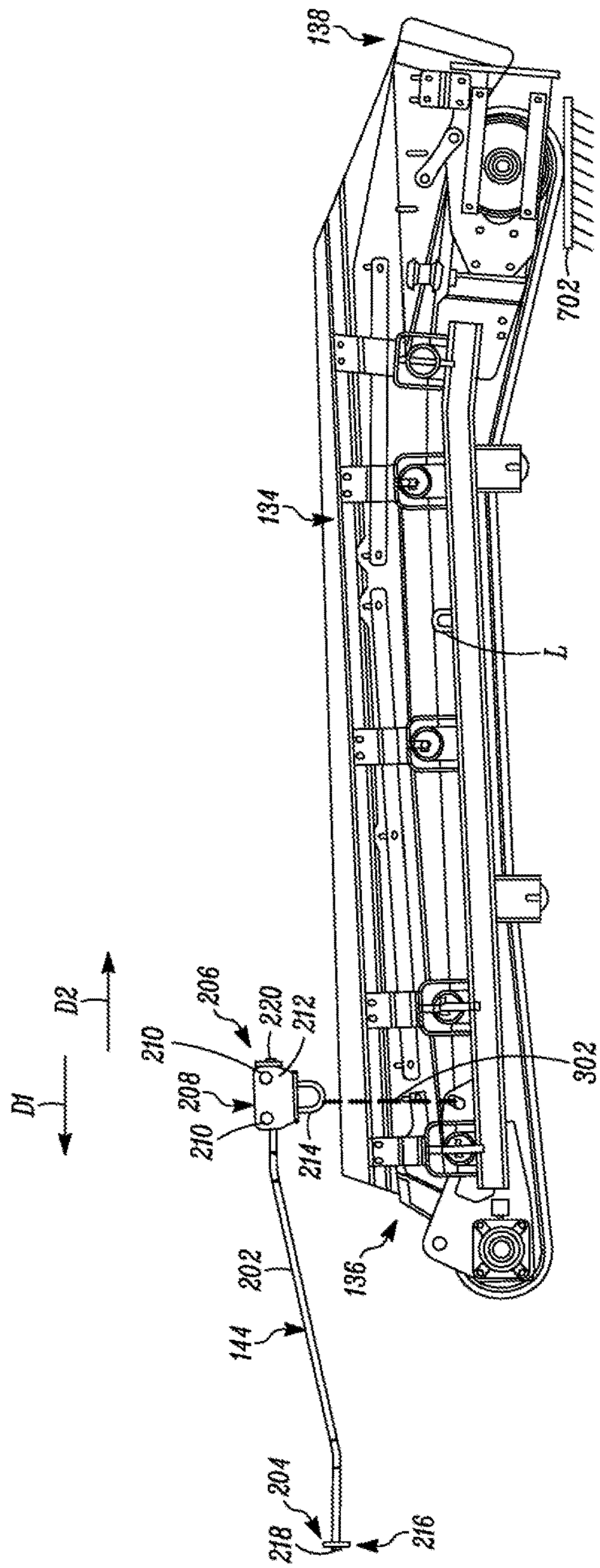
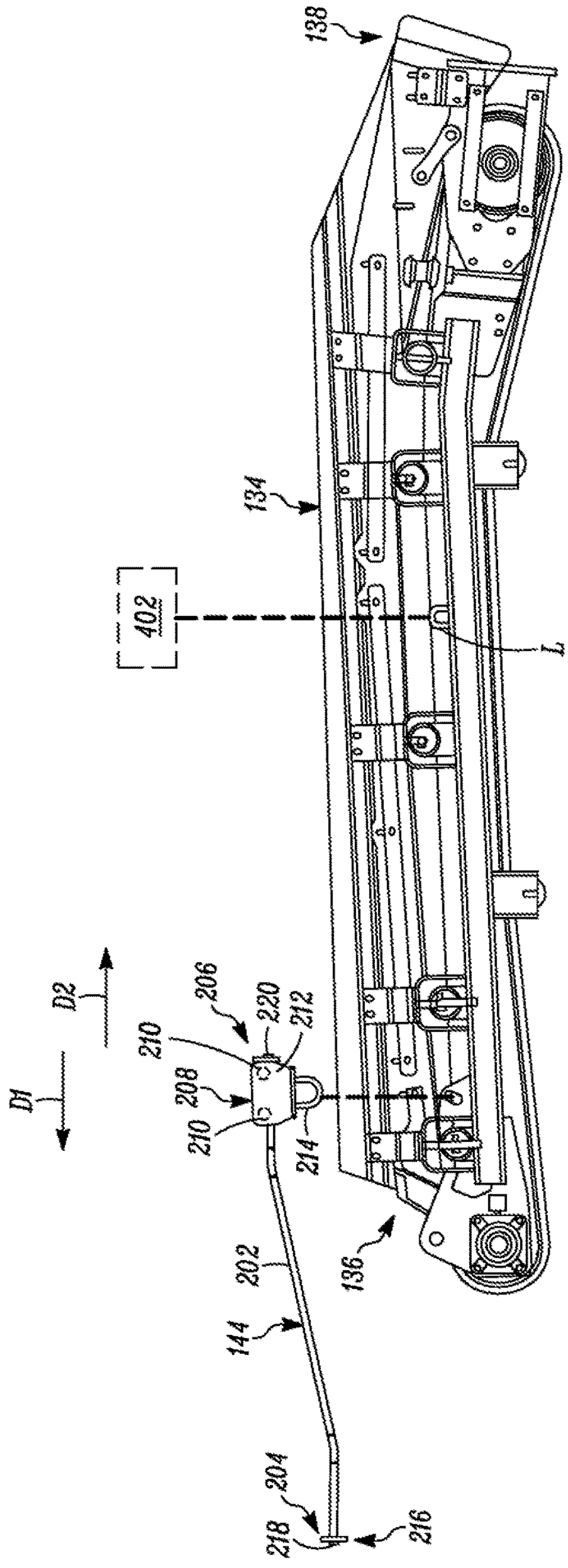

138
702
134
L
302
136
D1
D2
206
220
212
210
208
214
202
144
204
218
216

FIG. 7


138
134
402
L
D2
D1
206
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212
210
208
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214
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144
204
218
216
136

FIG. 8

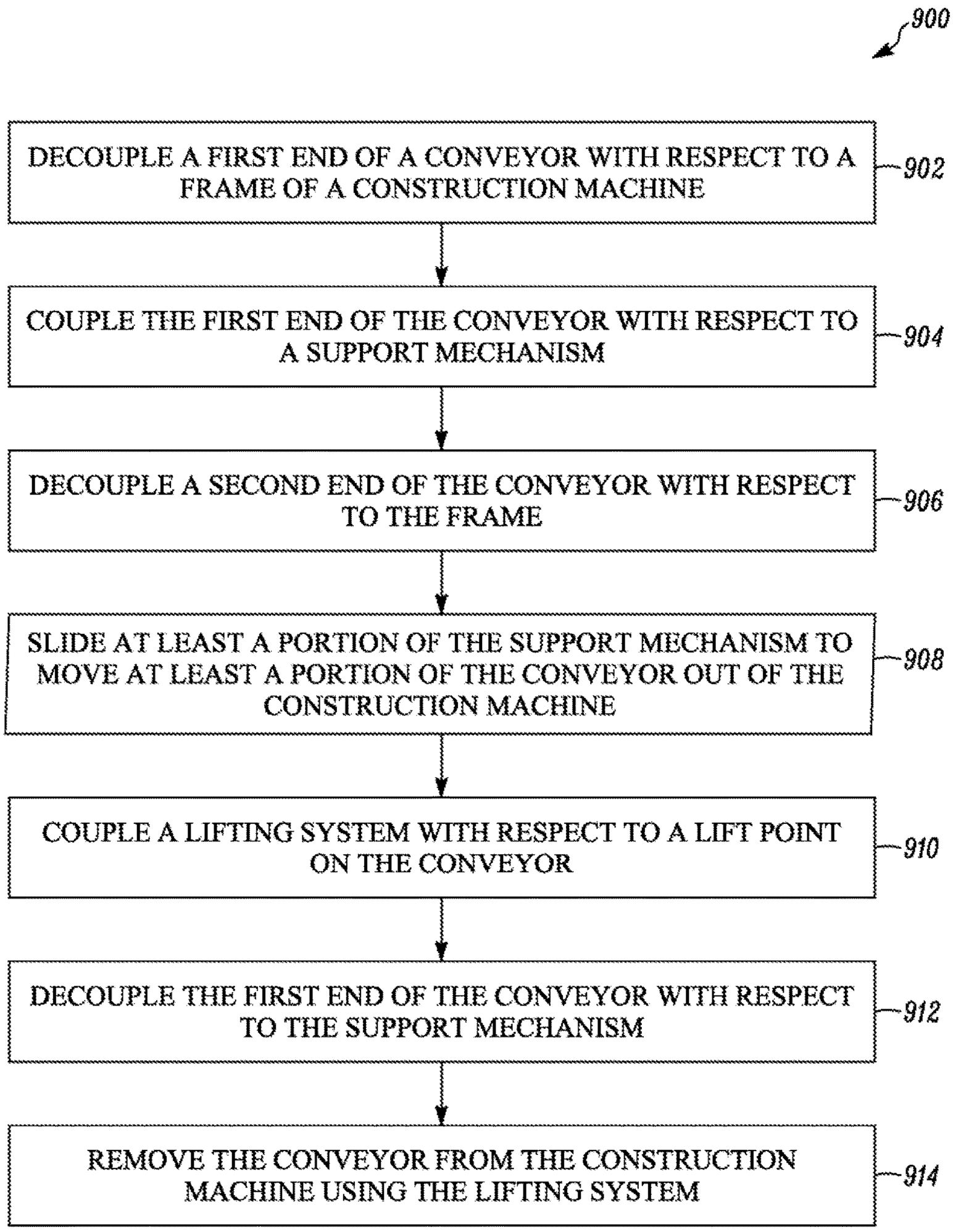
900
DECOUPLE A FIRST END OF A CONVEYOR WITH RESPECT TO A FRAME OF A CONSTRUCTION MACHINE
902
COUPLE THE FIRST END OF THE CONVEYOR WITH RESPECT TO A SUPPORT MECHANISM
904
DECOUPLE A SECOND END OF THE CONVEYOR WITH RESPECT TO THE FRAME
906
SLIDE AT LEAST A PORTION OF THE SUPPORT MECHANISM TO MOVE AT LEAST A PORTION OF THE CONVEYOR OUT OF THE CONSTRUCTION MACHINE
908
COUPLE A LIFTING SYSTEM WITH RESPECT TO A LIFT POINT ON THE CONVEYOR
910
DECOUPLE THE FIRST END OF THE CONVEYOR WITH RESPECT TO THE SUPPORT MECHANISM
912
REMOVE THE CONVEYOR FROM THE CONSTRUCTION MACHINE USING THE LIFTING SYSTEM
914

FIG. 9

SUPPORT MECHANISM FOR A CONSTRUCTION MACHINE

TECHNICAL FIELD

The present disclosure relates to a support mechanism for a construction machine. More particularly, the present disclosure relates to the support mechanism for a conveyor of the construction machine.

BACKGROUND

A machine, such as a cold planar, may typically include a conveyor installed therein. The conveyor may be employed for receiving material from a cutting tool of the machine, and further conveying the received material out of the machine or to another section of the machine, such as a secondary conveyor. In many situations, the conveyor may be installed within the machine, such that limited space may be available around the conveyor in order to access various portions or mounting locations of the conveyor.

Accordingly, during a removal or installation of the conveyor on the machine, such as during maintenance, repair, or replacement, a complicated process may be employed involving a scheduled procedure, requirement of skilled labor, specialized components and systems, such as lifts, tools, and so on. This can result in increased labor effort, increased service duration, increased machine downtime, and increased cost. Hence, there is a need for an improved support mechanism for components employed in such machines.

SUMMARY OF THE DISCLOSURE

In an aspect of the present disclosure, a construction machine is provided. The machine includes a frame. The machine includes an engine mounted on the frame. The machine includes a milling tool rotatably mounted on the frame and configured to be selectively coupled to the engine. The machine also includes a conveyor removably mounted on the frame. The machine further includes a support mechanism mounted on the frame. The support mechanism includes a track member secured to the frame. The support mechanism also includes at least one carriage member movably mounted on the track member. The support mechanism further includes an attachment member secured to the at least one carriage member and the conveyor. The attachment member is configured to be selectively unsecured from the conveyor. The support mechanism is configured to move at least a portion of the conveyor relative to the construction machine.

In another aspect of the present disclosure, a support mechanism for a conveyor associated with a construction machine is provided. The support mechanism includes a track member configured to be secured to the construction machine. The support mechanism also includes at least one carriage member configured to be movably mounted on the track member. The support mechanism further includes an attachment member configured to be secured to the at least one carriage member and the conveyor. The attachment member is configured to be selectively unsecured from the conveyor. The support mechanism is configured to move at least a portion of the conveyor relative to the construction machine.

In yet another aspect of the present disclosure, a method for removal of a conveyor of a construction machine is illustrated. The conveyor is removably mounted on a frame of the construction machine. The method includes decoupling a first end of the conveyor with respect to the frame. The method includes coupling the first end of the conveyor with respect to a support mechanism. The method includes decoupling a second end of the conveyor with respect to the frame. The method includes sliding at least a portion of the support mechanism to move at least a portion of the conveyor out of the construction machine. The method includes coupling a lifting system with respect to a lift point on the conveyor. The method also includes decoupling the first end of the conveyor with respect to the support mechanism. The method further includes removing the conveyor from the construction machine using the lifting system.

Other features and aspects of this disclosure will be apparent from the following description and the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** is a side view of an exemplary machine, according to one embodiment of the present disclosure;

FIG. **2** is a side view of a support mechanism and a conveyor of the machine of FIG. **1**, according to one embodiment of the present disclosure:

FIG. **3** is another side view of the support mechanism and the conveyor of FIG. **2**, according to one embodiment of the present disclosure;

FIG. **4** is another side view of the support mechanism and the conveyor of FIG. **2**, according to one embodiment of the present disclosure;

FIG. **5** is another side view of the support mechanism and the conveyor of FIG. **2**, according to one embodiment of the present disclosure:

FIG. **6** is another side view of the support mechanism and the conveyor of FIG. **2**, according to one embodiment of the present disclosure;

FIG. **7** is another side view of the support mechanism and the conveyor of FIG. **2**, according to one embodiment of the present disclosure;

FIG. **8** is yet another side view of the support mechanism and the conveyor of FIG. **2**, according to one embodiment of the present disclosure; and

FIG. **9** is a flowchart illustrating a method of removal of the conveyor of the machine of FIG. **1**, according to one embodiment of the present disclosure.

DETAILED DESCRIPTION

Wherever possible, the same reference numbers will be used throughout the drawings to refer to the same or the like parts. Referring to FIG. **1**, an exemplary construction machine **100** is illustrated. More specifically, the machine **100** is a cold planar. The machine **100** includes a frame **102**. The frame **102** is configured to support one or more components of the machine **100**. The machine **100** includes an enclosure **104** mounted on the frame **102**. The enclosure **104** is configured to house a power source **106** mounted on the frame **102** therein. The power source **106** is configured to provide power to the machine **100** for mobility and operational requirements. The power source **106** may be any power source known in the art including, but not limited to, an internal combustion engine, a motor, batteries, and/or a combination thereof.

The machine **100** includes a front track assembly **108** and a rear track assembly **110** mounted on the frame **102** (only two of four track assemblies are shown in FIG. **1**). Each of the front track assembly **108** and the rear track assembly **110**

is configured to support and provide mobility to the machine **100** on ground **112**. The machine **100** includes hydraulic struts **114**, **116** extending between the frame **102** and each of the front track assembly **108** and the rear track assembly **110** respectively. Each of the hydraulic struts **114**, **116** is configured to selectively extend and retract in order to raise and lower the machine **100** with respect to the ground **112** respectively.

The machine **100** also includes a milling tool **118** rotatably mounted on the frame **102**. The milling tool **118** may include a plurality of cutting elements (not shown) provided thereon, such as cutting teeth. The milling tool **118** is configured to remove material from the ground **112** including, but not limited to an asphalt surface and a paved surface, by cutting, scraping, milling, and so on. A depth of a cut or penetration of the cutting teeth of the milling tool **118** may be controlled by appropriate extension or retraction of each of the hydraulic struts **114**, **116**.

The milling tool **118** may be selectively coupled to the power source **106** using a transmission system **120**. In the illustrated embodiment, the transmission system **120** includes a driver pulley **122** operably coupled to the power source **106**, a driven pulley **124** operably coupled to the milling tool **118**, a belt **126** operably coupled to each of the driver pulley **122** and the driven pulley **124**, and a belt tensioner **128** operably coupled to the belt **126**. In other embodiments, the transmission system **120** may include any power transmission system known in the art, such as a gear train, a clutch system, a hydraulic system, and so on.

The machine **100** also includes a housing **130** mounted on the frame **102**. The housing **130** is configured to at least partially surround the milling tool **118**. The housing **130** may be made up of multiple components configured to contain and remove the material of the ground **112** that may be ground up by the milling tool **118**. Each of the components may be vertically positioned in order to account for the depth to which the milling tool **118** may dig into the ground **112**. For example, the housing **130** may include a side plate **132** disposed on opposing sides of the milling tool **118**. The side plate **132** may be selectively raised and lowered in order to provide a visual depth reference as the machine **100** may move on the ground **112** as well as to provide a lateral enclosure to the milling tool **118** and to contain the removed material.

The housing **130** may also include a moldboard (not shown) disposed behind the milling tool **118** with respect to a direction of travel of the machine **100**. The moldboard may be positioned at a depth lower than the side plate **132** in order to scrape up loose removed material and clean the ground **112**. As such, minimal additional cleanup may be required after the machine **100** may pass over the ground **112**. The housing **130** may also include an anti-slab (not shown) disposed in front of the milling tool **118** with respect to the direction of travel of the machine **100**. The anti-slab may be positioned above the ground **112** in order to break up the material and limit lifting up large chunks of the material by the milling tool **118** that may not be readily conveyable.

The machine **100** also includes a first conveyor **134** mounted on the frame **102**. The first conveyor **134** defines a first end **136** and a second end **138** thereof. The second end **138** is distal with respect to the first end **136**. The first conveyor **134** is configured to receive the removed material at the first end **136** thereof from the milling tool **118** and deliver the received material from the second end **138** thereof to a second conveyor **140**. The second conveyor **140** is also mounted on the frame **102**. The second conveyor **140** and associated components (not shown) thereof may be mounted on the frame **102** and are shown partially in the illustrated FIG. **1**. The machine **100** further includes an operator cabin **142** mounted on the frame **102**. The operator cabin **142** may include a control console **146** having required instruments in order to allow an operator to control an operation of various components of the machine **100**.

The machine **100** also includes a support mechanism **144** mounted on the frame **102**. The support mechanism **144** will be hereinafter interchangeably referred to as "the mechanism **144**". The mechanism **144** is configured to support and move at least a portion of the first conveyor **134** relative to the machine **100** along directions "D**1**" and/or "D**2**", such as during a removal thereof from the machine **100** and/or installation thereof on the machine **100**.

Referring to FIGS. **2** to **8**, side views of the mechanism **144** and the first conveyor **134** are illustrated. It should be noted that FIGS. **2** to **8** illustrate only the mechanism **144** and the first conveyor **134** while omitting other components of the machine **100** for the purpose of explanation and visual clarity. The mechanism **144** includes a track member **202** secured to the frame **102**. It should be noted that the track member **202** may include a linear guide, or any other component and/or mechanism adapted to allow liner movement of one or more associated carriage members with respect thereto, as described hereinafter.

The track member **202** defines a first end **204** and a second end **206** thereof. The second end **206** is disposed distal with respect to the first end **204**. The track member **202** may be any rail like element known in the art including, but not limited to, a tubular element, a C-shaped channel, an I-shaped beam, an L-shaped beam, and so on. In the illustrated embodiment, the track member **202** includes a bent configuration. In other embodiments, the track member **202** may include any other configured, such as a straight configuration, and so on, based on application requirements.

The mechanism **144** also includes at least one carriage member **208** movably mounted on the track member **202**. In the illustrated embodiment, the mechanism **144** includes a single carriage member **208**. In other embodiments, the mechanism **144** may include multiple carriage members **208** based on application requirements. The carriage member **208** includes a plurality of roller members **210**. In the illustrated embodiment, the plurality of roller members **210** include two roller members. In other embodiments, the plurality of roller members **210** may include a single or multiple roller members based on application requirements.

Each of the plurality of roller members **210** is movably mounted on the track member **202**. Accordingly, each of the plurality of roller members **210** is configured to selectively allow rolling movement of the carriage member **208** on the track member **202** between the first end **204** and the second end **206** thereof along the directions "D**1**" and/or "D**2**". In other embodiments, the carriage member **208** may be slidably coupled to the track member **202**, such as using a sliding sleeve (not shown) between the carriage member **208** and the track member **202**. In some situations, one or more of the track member **202**, the carriage member **208**, each of the plurality of roller members **210**, and/or the sliding sleeve may be coated with a low coefficient of friction material in order to limit wear between contacting surfaces. In yet other embodiments, the carriage member **208** may include any other movable members, such as a combination of rolling and sliding elements, a tooth and rack arrangement, and so on, adapted to allow movement of the carriage member **208** with respect to the track member **202** along the directions "D**1**" and/or "D**2**".

Each of the plurality of roller members **210** is disposed adjacent to one another. Also, the carriage member **208** includes a body member **212** provided in association with each of the plurality of roller members **210**. More specifically, the body member **212** is secured to each of the plurality of roller members **210**, in turn, securing each of the plurality of roller members **210** with respect to one another. The mechanism **144** also includes an attachment member **214**. The attachment member **214** is secured to the carriage member **208**.

More specifically, the attachment member **214** is secured to the body member **212**. Also, the attachment member **214** is configured to be selectively secured and unsecured from the first conveyor **134** and will be explained in more detail later. In other embodiments, when the carriage member **208** may include the single roller member (not shown), the attachment member **214** may be directly coupled to the single roller member. In such a situation, the body member **212** may be optionally omitted. In the illustrated embodiment, the attachment member **214** is a U-shaped hook. In other embodiments, the attachment member **214** may be any other coupling element including, but not limited to, a C-shaped hook, an eye bolt, and a lifting hook.

Additionally, the mechanism **144** includes at least one stop member **216** provided on the track member **202**. The stop member **216** is configured to limit a movement of the at least one carriage member **208** over the track member **202**. For example, in the illustrated embodiment, the mechanism **144** includes a first stop member **218** and a second stop member **220**. The second stop member **220** is disposed spaced apart with respect to the first stop member **218**. More specifically, the first stop member **218** is provided on the first end **204** of the track member **202**. Accordingly, the first stop member **218** is configured to limit movement of the carriage member **208** on the track member **202** beyond the first end **204** thereof along the direction "D**1**".

Also, the second stop member **220** is provided on the second end **206** of the track member **202**. Accordingly, the second stop member **220** is configured to limit movement of the carriage member **208** on the track member **202** beyond the second end **206** thereof along the direction "D**2**". As such, the first stop member **218** and the second stop member **220** limit movement of the carriage member **208** on the track member **202** between the first end **204** and the second end **206** thereof. In other embodiments, the mechanism **144** may include multiple stop members (not shown) in order to provide multiple stop points during movement of the carriage member **208** on the track member **202** between the first end **204** and the second end **206** thereof, based on application requirements.

Referring to FIGS. **3** to **7**, the mechanism **144** also includes a coupling member **302**. The coupling member **302** is configured to selectively secure the attachment member **214** to the first end **136** of the first conveyor **134**. The attachment member **214** may be any coupling link known in the art, such as a belt, a chain, a metallic link, and so on. In some embodiments, the coupling member **302** may be any fastening element known in the art, such as a bolt and nut arrangement, a pin, and so on, configured to directly secure the first end **136** of the first conveyor **134** to the attachment member **214**.

INDUSTRIAL APPLICABILITY

The present disclosure relates to a method **900** of removal of the first conveyor **134** from the machine **100**. Referring to FIG. **9**, a flowchart of the method **900** is illustrated. The method **900** will now be explained in detail with reference to FIGS. **2** to **9**. At step **902**, the first end **136** of the first conveyor **134** is decoupled with respect to the frame **102**. More specifically, as shown in FIG. **2**, the first end **136** of the first conveyor **134** is decoupled with respect to a first attachment location "A" on the frame **102** and moved in a direction "D**3**" with respect to the frame **102**.

At step **904**, the first end **136** of the first conveyor **134** is coupled with respect to the support mechanism **144**. More specifically, as show in FIG. **3**, the first end **136** of the first conveyor **134** is coupled with respect to the attachment member **214** provided on the carriage member **208** of the mechanism **144**. In the illustrated embodiment, the first end **136** of the first conveyor **134** is coupled with respect to the attachment member **214** using the coupling member **302**. In other embodiments, the first end **136** of the first conveyor **134** may be coupled with respect to the attachment member **214** using the fastening element (not shown). Also, the carriage member **208** is positioned at the first end **204** of the track member **202** adjacent to the first stop member **218**.

At step **906**, the second end **138** of the first conveyor **134** is decoupled with respect to the frame **102**. More specifically, as shown in FIG. **4**, the second end **138** of the first conveyor **134** is decoupled with respect to a second attachment location "B" on the frame **102** and coupled with respect to a lifting system **402**. The lifting system **402** may be any lifting mechanism known in the art, including, but not limited to, a lift crane and a hoist.

At step **908**, at least a portion of the mechanism **144** is slid in order to move at least a portion of the first conveyor **134** out of the machine **100**. More specifically, as shown in FIGS. **5** and **6**, the carriage member **208** is moved over the track member **202** from the first end **204** toward the second end **206** thereof in the direction "D**2**". As such, each of the plurality of roller members **210** is moved over the track member **202** from the first end **204** toward the second end **206** thereof in the direction "D**2**" in order to move the first end **136** of the first conveyor **134**. Accordingly, the second end **138** of the first conveyor **134** is moved out of the machine **100**.

At step **910**, as shown in FIG. **8**, the lifting system **402** is coupled with respect to a lift point "L" on the first conveyor **134**. In the illustrated embodiment, the lift point "L" refers to a center of gravity related to the first conveyor **134**. The lift point "L" provides to hold and lift the first conveyor **134** using the lifting system **402** through a single attachment point. In other embodiments, the lift point "L" may refer to any other attachment point on the first conveyor **134** configured to hold and lift the first conveyor **134** thereby.

More specifically, as shown in FIG. **7**, prior to coupling the lifting system **402** with respect to the lift point "L" on the first conveyor **134**, the second end **138** of the first conveyor **134** is supported on a support structure **702**. The support structure **702** may be any structure configured to temporarily support the second end **138** of the first conveyor **134**, such as a wall, a stage, a pillar, a scaffold, a hoist, a lift crane, and so on. Accordingly, the lifting system **402** is decoupled with respect to the second end **138** of the first conveyor **134** and coupled with respect to the lift point "L".

At step **912**, the first end **136** of the first conveyor **134** is decoupled with respect to the mechanism **144**. More specifically, as shown in FIG. **8**, the coupling member **302** is decoupled with respect to the attachment member **214** and the first end **136** of the first conveyor **134**. At step **914**, the first conveyor **134** is removed from the machine **100** using the lifting system **402**. Accordingly, the first conveyor **134**

may be removed from the machine **100** using the lifting system **402** coupled to the single lift point "L" on the first conveyor **134**.

It should be noted that the mechanism **144** may be also be employed during installation of the first conveyor **134** on the machine **100**. In such a situation, the method **900** may be employed in a substantially reverse manner. For example, during installation process, the first conveyor **134** may be coupled with respect to the lifting system **402** through the lift point "L". The first conveyor **134** may be then positioned with respect to the machine **100**, such that the first end **136** of the first conveyor **134** may be adjacent to the frame **102** of the machine **100**.

The carriage member **208** of the mechanism **144** may be positioned at the second end **206** of the track member **202** adjacent to the second stop member **220**. Further, the first end **136** of the first conveyor **134** may be coupled with respect to the attachment member **214** of the mechanism **144** using the coupling member **302**. The second end **138** of the first conveyor **134** may be then supported on the support structure **702**. The lifting system **402** may be then decoupled with respect to the lift point "L" and may be coupled with respect to the second end **138** of the first conveyor **134**.

The carriage member **208** may be then moved toward the first end **204** of the track member **202** in the direction "D1" in order to slide the first end **136** of the first conveyor **134** in to the machine **100**. Also, the lifting system **402** may be moved toward the frame **102** of the machine **100** in order to assist movement of the first conveyor **134** in to the machine **100**. As the carriage member **208** may reach the first end **204** of the track member **202**, the coupling member **302** may be decoupled with respect to the first end **136** of the first conveyor **134**.

The first end **136** of the first conveyor **134** may be then coupled with respect to the first attachment location "A" on the frame **102** of the machine **100**. The second end **138** of the first conveyor **134** may be then coupled with respect to the second attachment location "B" on the frame **102** of the machine **100**. The lifting system **402** may be then decoupled with respect to the second end **138** of the first conveyor **134**. Accordingly, the first conveyor **134** may be installed within the machine **100** using the mechanism **144** and the lifting system **402**.

The support mechanism **144** provides a simple, efficient, and cost effective method of removal and/or installation of the first conveyor **134** with respect to the frame **102** of the machine **100**. As such, the first conveyor **134** may be removed and/or installed within the machine **100** using only the mechanism **144** and the lifting system **402**, in turn, limiting need of multiple equipment, tools, complex process, and so on. This may result in reduced removal/installation duration, reduced labor effort, reduced machine downtime, reduced service duration, increased productivity, and so on. Also, the mechanism **144** includes a simple design using regularly employed components, thus, reducing an overall cost of the mechanism **144**. As such, the mechanism **144** may be installed in any machine with little or no modification to the existing system.

While aspects of the present disclosure have been particularly shown and described with reference to the embodiments above, it will be understood by those skilled in the art that various additional embodiments may be contemplated by the modification of the disclosed machines, systems and methods without departing from the spirit and scope of the disclosure. Such embodiments should be understood to fall within the scope of the present disclosure as determined based upon the claims and any equivalents thereof.

What is claimed is:

1. A construction machine comprising:

a frame;

an engine mounted on the frame;

a milling tool rotatably mounted on the frame and configured to be selectively coupled to the engine;

a conveyor removably mounted on the frame; and

a support mechanism mounted on the frame, the support mechanism comprising:

a track member secured to the frame;

at least one carriage member movably mounted on the track member; and

an attachment member secured to the at least one carriage member and the conveyor, the attachment member configured to be selectively unsecured from the conveyor,

wherein the support mechanism is configured to move at least a portion of the conveyor relative to the construction machine; and

wherein the conveyor includes a lift point proximate a center of gravity of the conveyor and configured to be coupled to a lifting system such that the conveyor can be removed from the construction machine using the lifting system.

2. The construction machine of claim **1**, wherein the at least one carriage member includes at least one roller member.

3. The construction machine of claim **2**, wherein the at least one roller member includes a plurality of roller members, each of the plurality of roller members is secured to one another using a body member.

4. The construction machine of claim **3**, wherein the attachment member is secured to the body member.

5. The construction machine of claim **1** further includes a coupling member configured to secure the attachment member to the conveyor.

6. The construction machine of claim **1** further includes at least one stop member provided on the track member, the at least one stop member configured to limit a movement of the at least one carriage member over the track member.

7. The construction machine of claim **1**, wherein the at least one carriage member is configured to be slidably coupled to the track member.

8. A support mechanism for a conveyor associated with a construction machine, the support mechanism comprising:

a track member configured to be secured to the construction machine;

at least one carriage member configured to be movably mounted on the track member; and

an attachment member configured to be secured to the at least one carriage member and the conveyor, the attachment member configured to be selectively unsecured from the conveyor,

wherein the support mechanism is configured to move at least a portion of the conveyor relative to the construction machine; and

wherein the conveyor includes a lift point proximate a center of gravity of the conveyor and configured to be coupled to a lifting system such that the conveyor can be removed from the construction machine using the lifting system.

9. The support mechanism of claim **8**, wherein the at least one carriage member includes at least one roller member.

10. The support mechanism of claim **9**, wherein the at least one roller member includes a plurality of roller members, each of the plurality of roller members is secured to one another using a body member.

11. The support mechanism of claim 10, wherein the attachment member is secured to the body member.

12. The support mechanism of claim 8 further includes a coupling member configured to secure the attachment member to the conveyor.

13. The support mechanism of claim 8 further includes at least one stop member provided on the track member, the at least one stop member configured to limit a movement of the at least one carriage member over the track member.

14. The support mechanism of claim 8, wherein the at least one carriage member is configured to be slidably coupled to the track member.

15. A method for removal of a conveyor of a construction machine, the conveyor removably mounted on a frame of the construction machine, the method comprising:

decoupling a first end of the conveyor with respect to the frame;

coupling the first end of the conveyor with respect to a support mechanism;

decoupling a second end of the conveyor with respect to the frame;

sliding at least a portion of the support mechanism to move at least a portion of the conveyor out of the construction machine;

coupling a lifting system with respect to a lift point on the conveyor;

decoupling the first end of the conveyor with respect to the support mechanism; and

removing the conveyor from the construction machine using the lifting system.

16. The method of claim 15, wherein coupling the first end of the conveyor further includes coupling the first end of the conveyor with respect to an attachment member of the support mechanism.

17. The method of claim 15, wherein decoupling the second end of the conveyor further includes coupling the second end of the conveyor with respect to the lifting system.

18. The method of claim 17, wherein coupling the lifting system with respect to the lift point further includes decoupling the second end of the conveyor with respect to the lifting system.

19. The method of claim 18, wherein coupling the lifting system with respect to the lift point further includes supporting the second end of the conveyor using a support structure.

20. The method of claim 15, wherein sliding at least the portion of the support mechanism further includes moving a carriage member over a track member of the support mechanism.

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